# AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

AIM305-R2

# Hello, is it conversational AI you're looking for?

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Amazon Web Services

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Amazon Web Services

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# Agenda

Conversational artificial intelligence (AI) for customer service

Introduction to Amazon Lex and Amazon Polly

Demo – banking bot with personalized conversational interface

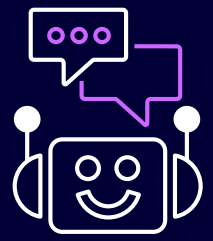
Integrating across web and interactive voice response (IVR) channels

Personalization Strategies for IVRs and chatbots

Contact center integrations

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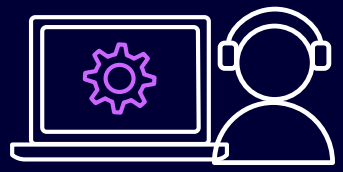
# Why AI for customer service



## Self-service

Deflect calls with human-like virtual agents and IVRs

Reduce agent call volume



## Real-time call analytics and agent assist

Decrease agent call-handling time by providing actionable insights

Solve customer needs faster



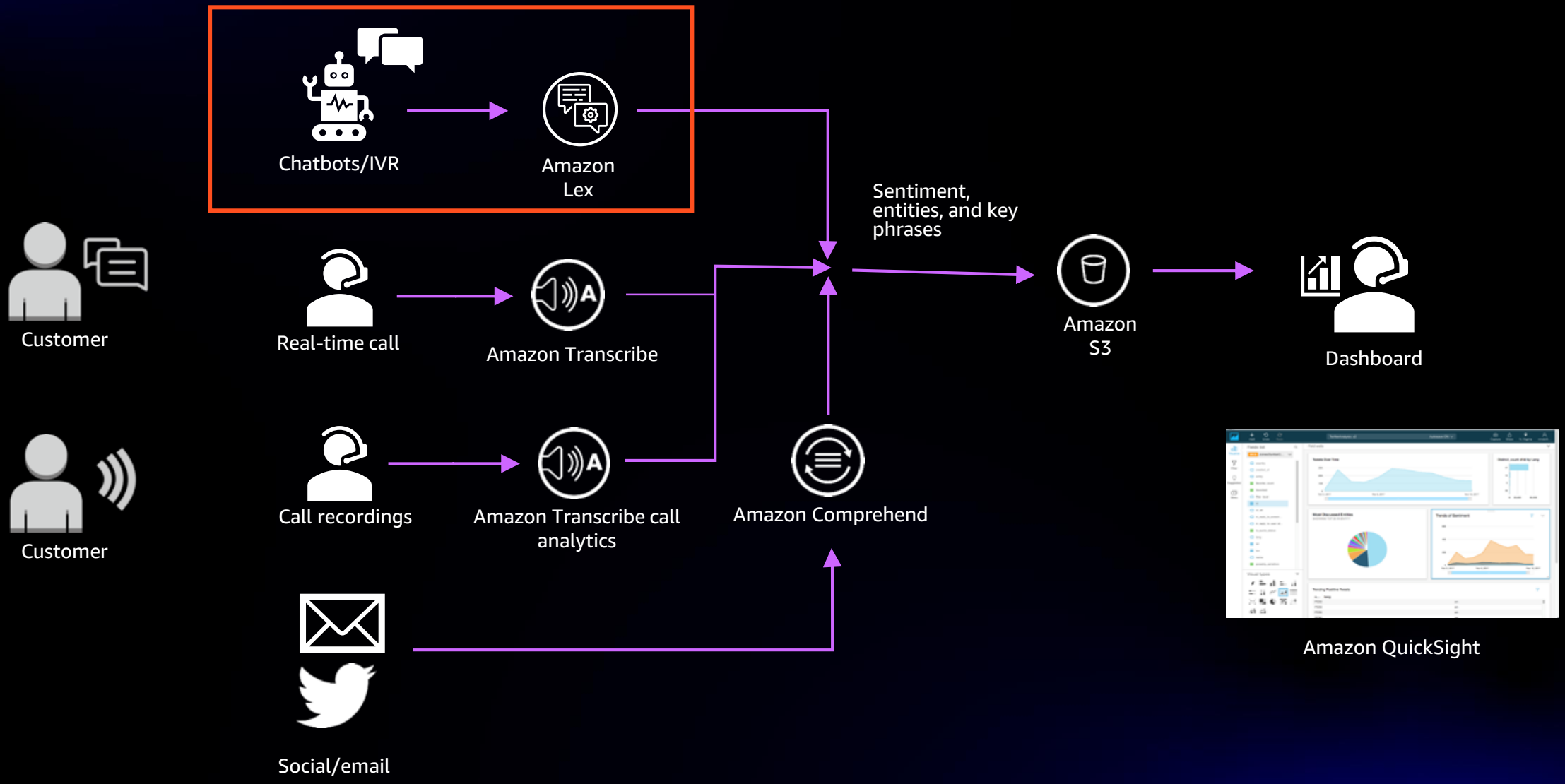
## Post-call analytics

Understand and solve customer needs faster

Enable contact center operators to make high-value decisions

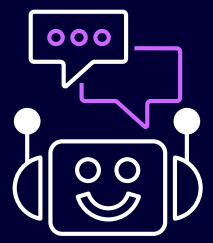
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# Conversational AI for customer service




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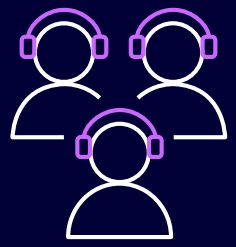
# Why self-service



## Virtual agents

Deflect calls with human-like virtual agents and IVRs

Reduce agent call volume



## Intelligent routing

Identify caller's intent and route to an appropriate agent queue

Improve customer experience



## Information capture

Collect key information to assist agents in resolving questions efficiently

Reduce call resolution times

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# Amazon Lex

**Easy** to use – fully managed AI service on AWS products and services

Natively **integrate** with AWS services: Amazon Kendra, AWS Lambda, Amazon Connect



High-**quality** text and speech-language understanding

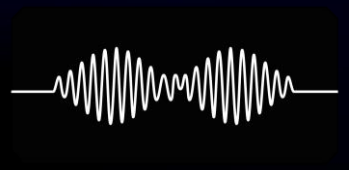
Seamlessly **deploy** and scale

A service for building **conversational** interfaces using voice and text

aws

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# “Book a hotel”



Book | a | hotel | in | NYC

Automatic speech recognition

Hotel booking | New York City

Natural language understanding

Intent/slot model

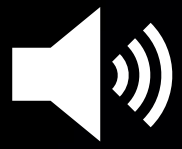
| Hotel Booking | |
|---|---|
| City | New York City |
| Check In | April 19th |
| Check Out | April 21st |

“Can I go ahead with the booking?”



**Confirmation:** “Your hotel is booked for April 19th“

Amazon Polly



“Your hotel is booked for April 19th”

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# Bot concepts




**Intents**
An intent performs an action in response to natural language user input

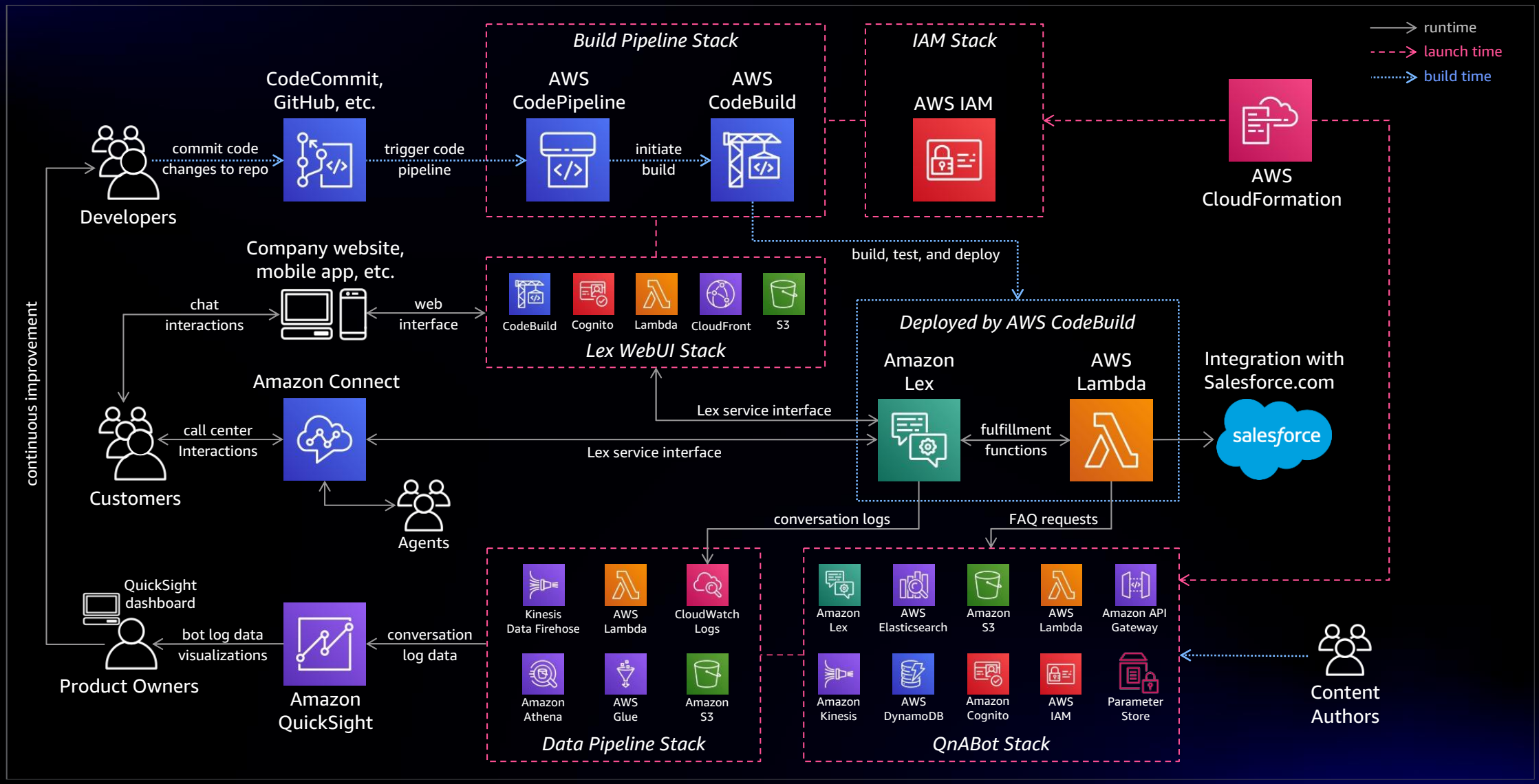
**Utterances**
Spoken or typed phrases that invoke your intent

**Slots**
Slots are input data required to fulfill the intent

**Fulfillment**
Fulfillment mechanism for your intent

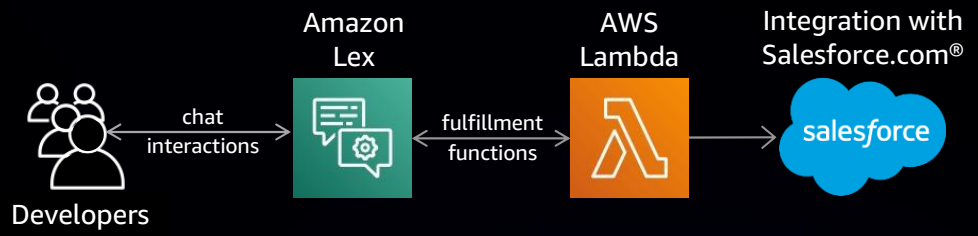
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# Solution architecture



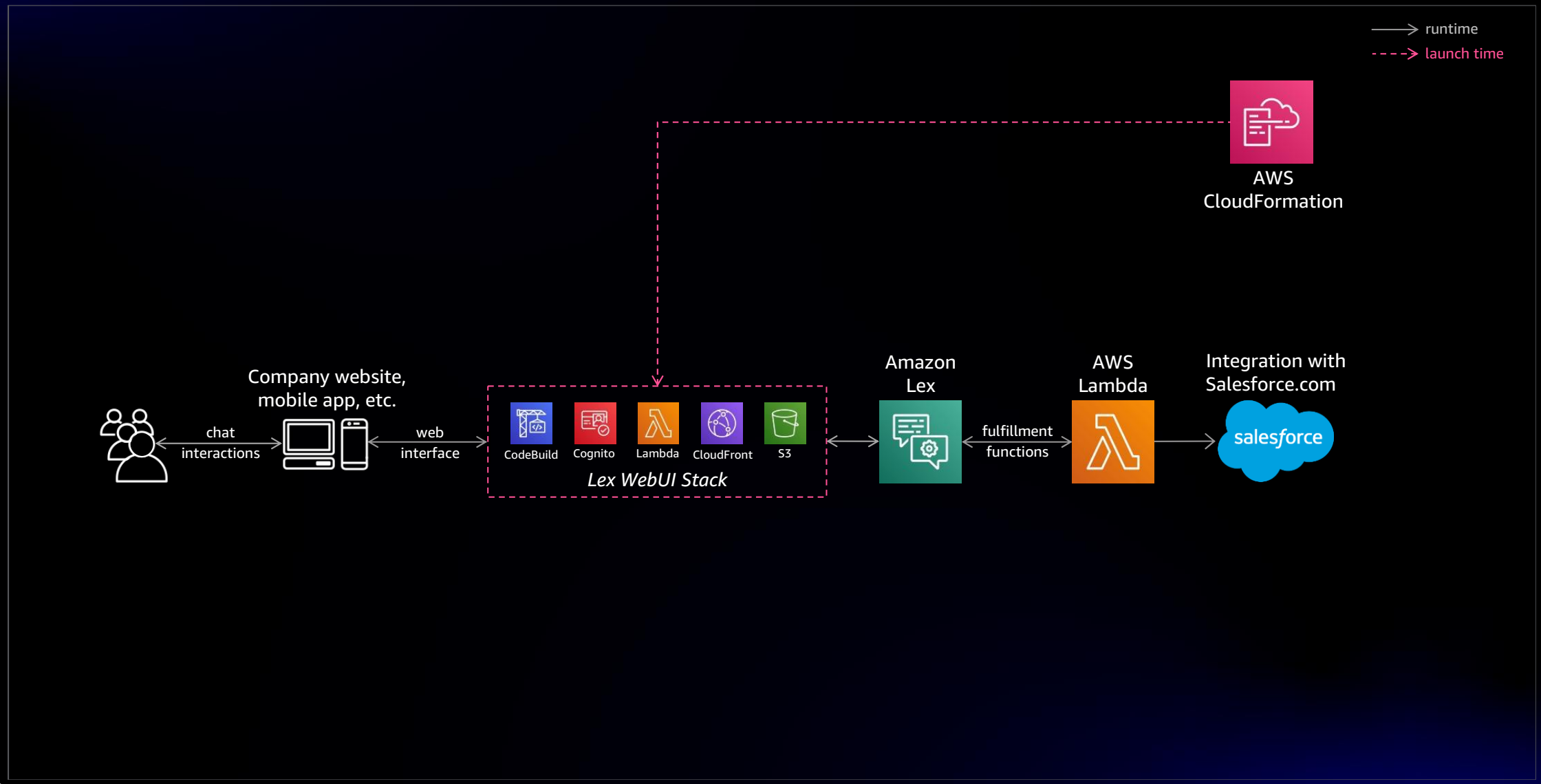

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# Architecture – Amazon Lex/Salesforce integration



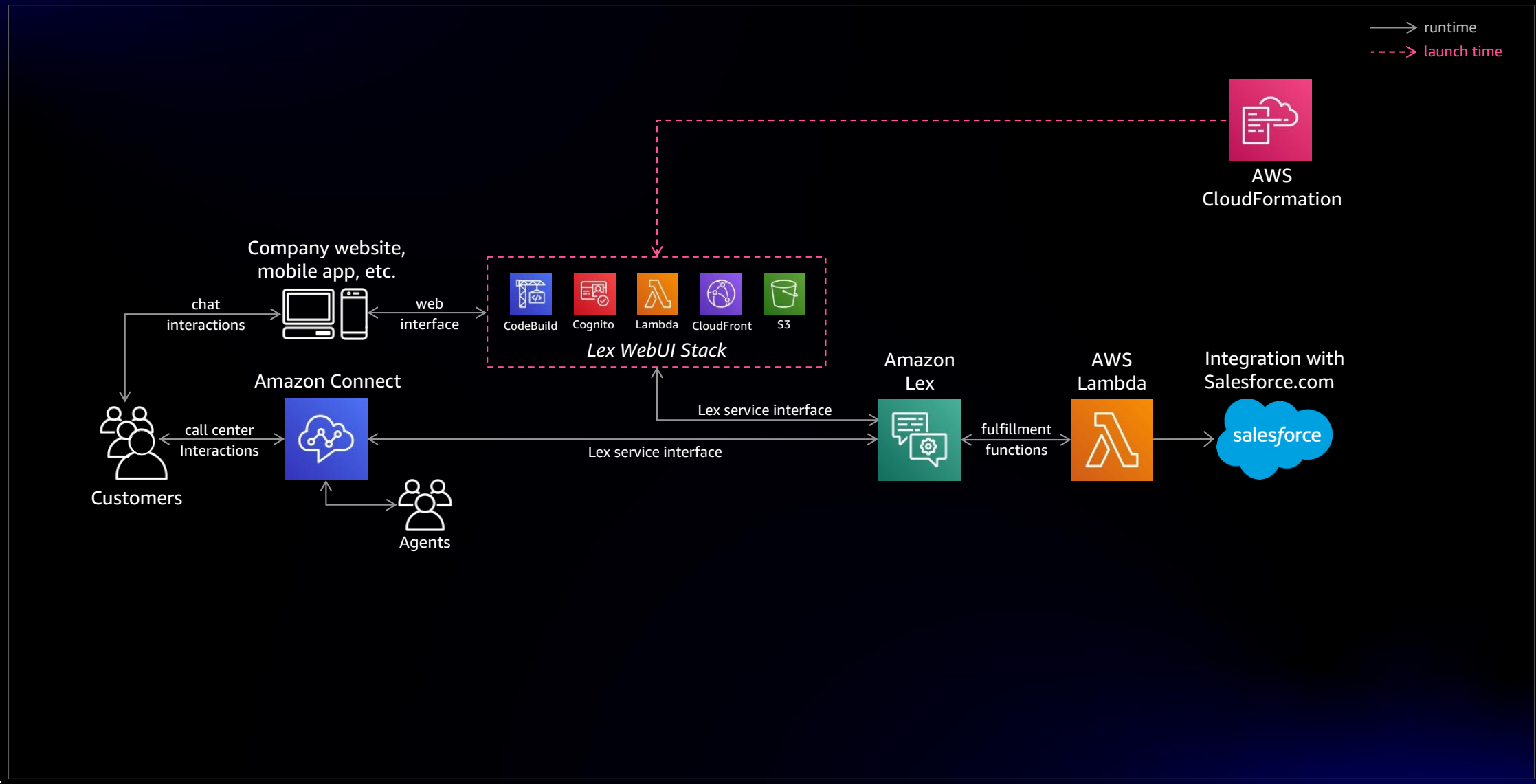

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# Architecture – Web integration



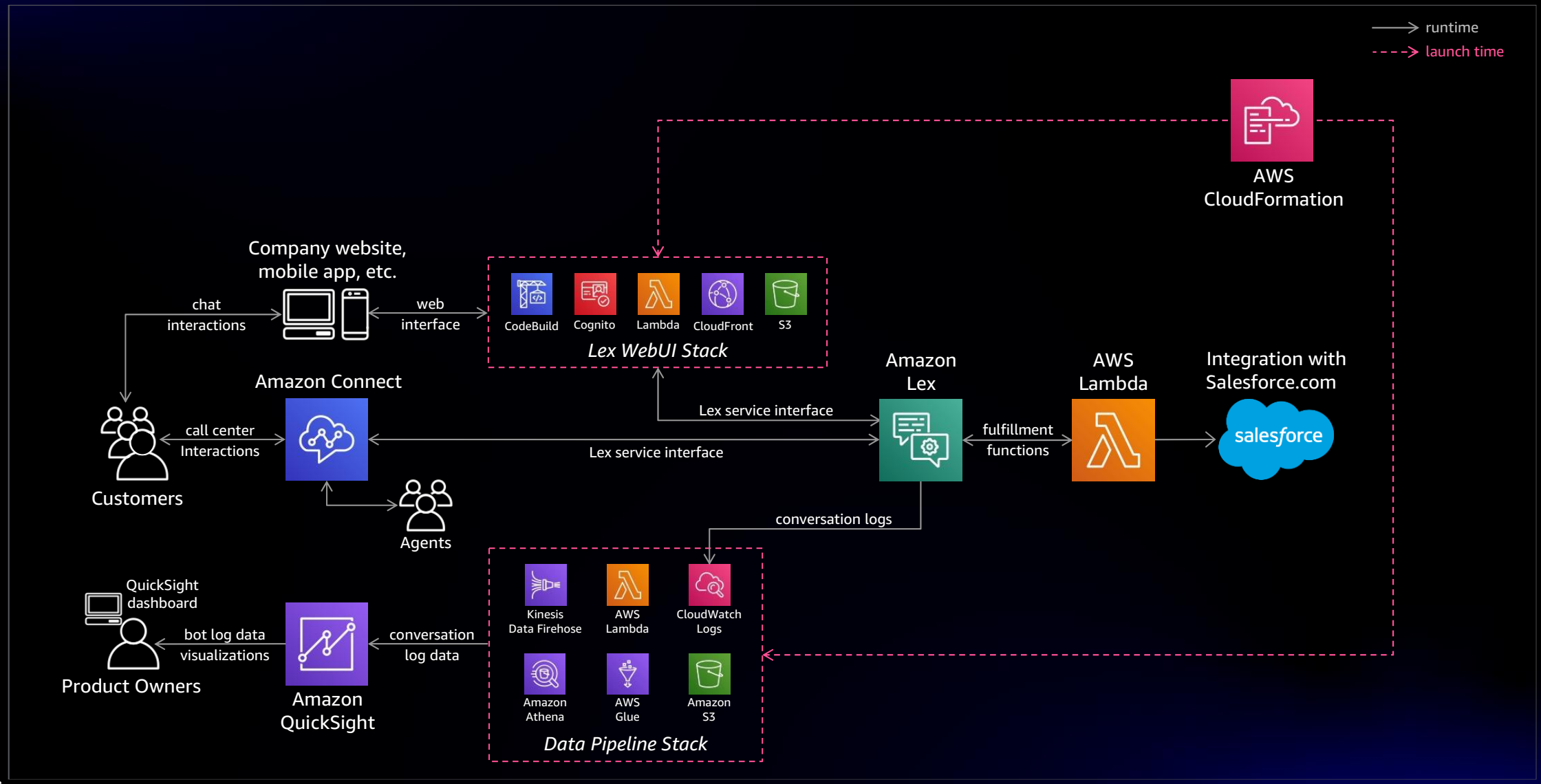

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# Architecture – Amazon Connect integration



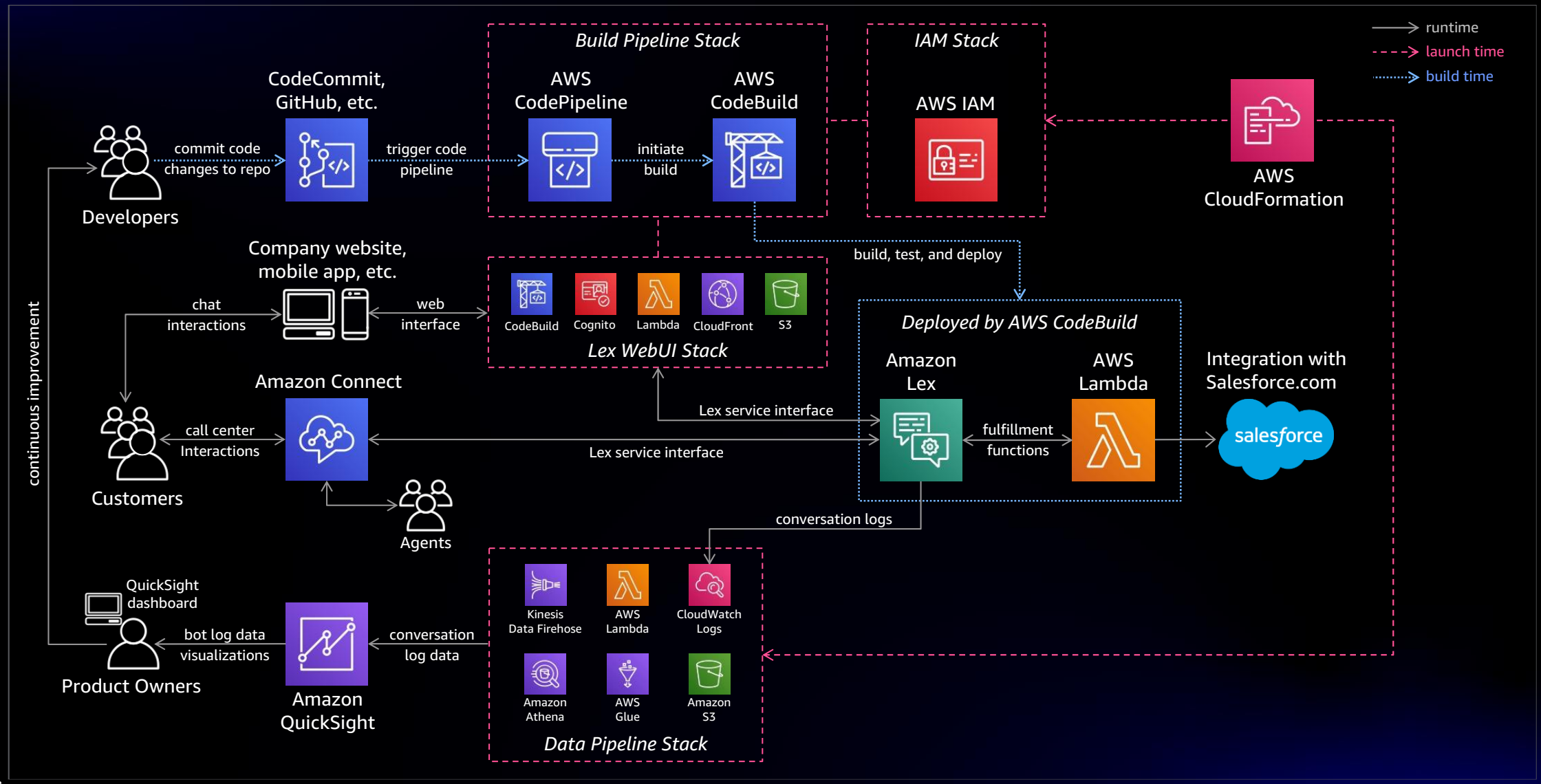

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# Architecture – Data pipeline



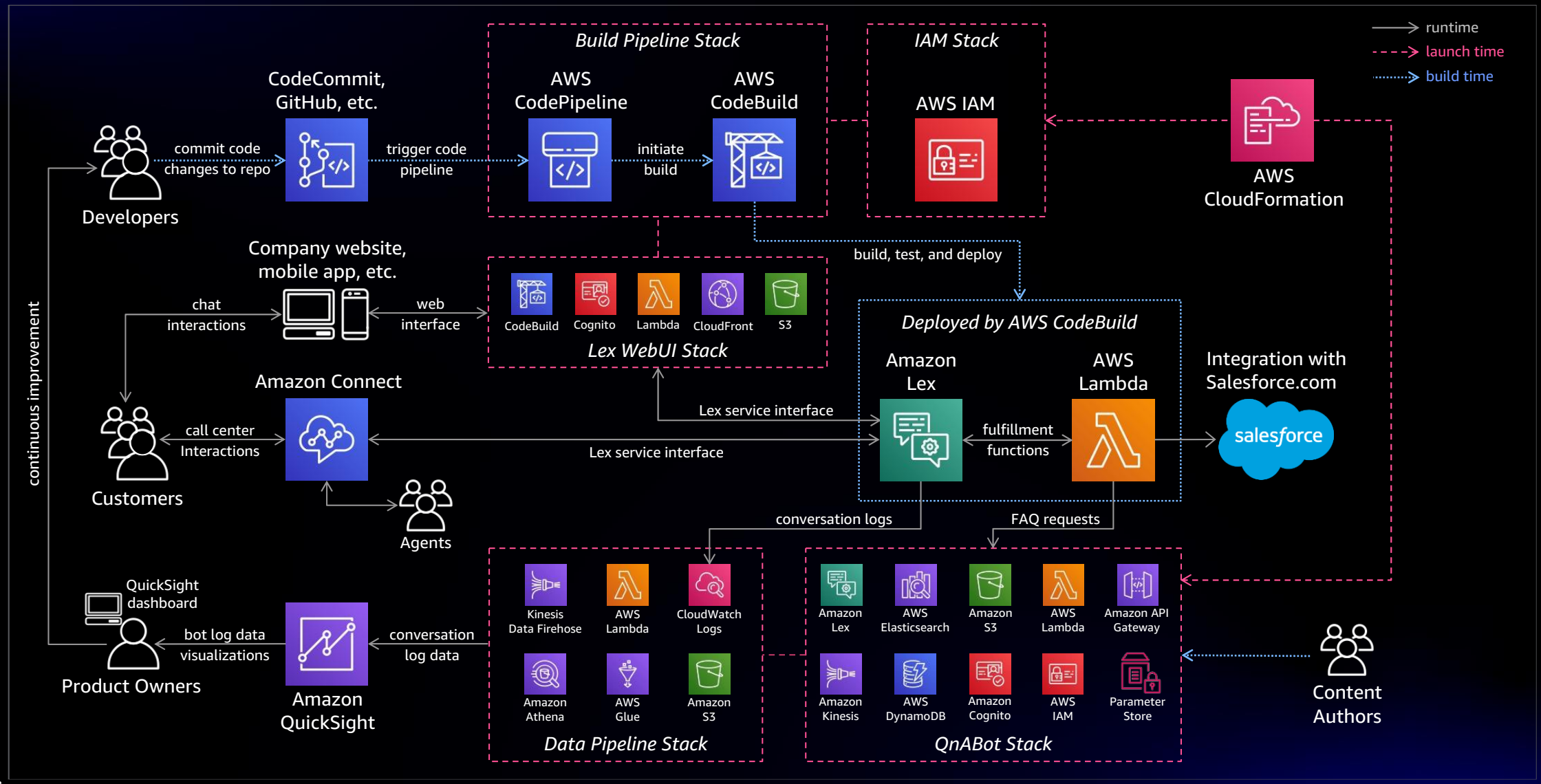

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# Architecture – CD/CD pipeline




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# Architecture – AWS QnABot integration




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# Personalization strategies

- Use an identifier to greet registered users

  **“Welcome back Mr. Smith. How may I assist you today?”**

- Offer a proactive reason for call

  **“I see that your order is delayed. Is that what you’re calling about?”**

  **“I see you usually call in for making your bill payment. Is that why you’re calling today?”**

- Use available data to process a request

  **“Do you want to renew your insurance plan with the payment information on file?”**

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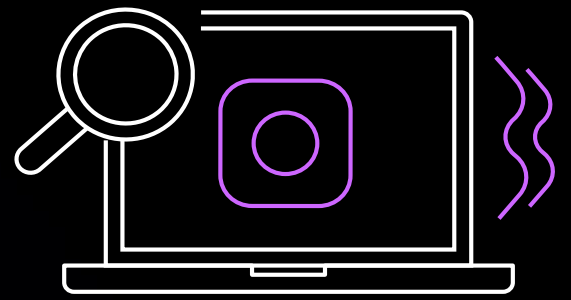
# Contact center integrations



Amazon Connect

GENESYS™

Genesys Cloud CX



Bring your own telephony

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# How we can help



## Solutions architects

- Engage with a solutions architect dedicated to your account
- Brainstorm use cases and get support for solution implementation
- https://aws.amazon.com/contact-us/



## ML Solutions Lab

- Identify key areas where machine learning could help you with an AWS AI expert
- Let AWS experts build POCs and custom solutions for your use case



## AWS Partner Network

Let certified AWS Partners help you with POCs and build integrations with your current systems to productionize



## Get started today

Create your Amazon Lex bot – Click Here

Deliver personalized customer support experiences – Click Here

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# Related sessions

## *Amazon Connect*

### Tuesday, November 30

**Improve agent performance with ML-powered Amazon Connect**

BIZ203 | Breakout | 12.30pm-1.30pm

Level 4, Delfino 4101, Venetian

### Thursday, December 2

**Improve contact center insights and outcomes with ML**

BIZ305 | Builders' | 11.30am-12.30pm

Level 1, Academy 417, Caesars Forum

## *AWS CCI*

### Thursday, December 2

**Uncover insights from customer conversations with no ML expertise required**

AIM317 | Workshop | 11.30am-1.45pm

Level 1, Alliance 307, Caesars Forum

### Thursday, December 2

**How Zillow and Genesys are transforming customer conversations**

AIM205 | Breakout | 1.00pm-2.00pm

Level 1, Forum 113, Caesars Forum

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# Thank you!

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# Additional resources

REFERENCES TO SOLUTIONS USED IN THIS CHALK TALK

Deliver personalized customer support experiences with Amazon Connect, Amazon Lex, and Salesforce
Setting up a data pipeline to visualize Lex conversation logs

Monitor operational metrics for your Amazon Lex chatbot
Setting up an analytics dashboard to analyze your bot performance

Deploy a Web UI for Your Chatbot
Create a web / mobile web integration for your Lex bots

Create a Question and Answer Bot with Amazon Lex and Amazon Alex
Deploy a solution for managing Frequently Asked Questions (FAQs)

Build a banking bot use case with Amazon Lex
Workshop with step-by-step instructions

How to approach conversation design: The basics (Part 1)
Introduction to Conversation Design

How to approach conversation design: Getting started with Amazon Lex (Part 2)
Deeper dive on Conversation Design with Amazon Lex

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# Salesforce integration

```python
def lookup_sfdc_customer_by_phone(customer_phone):
    # invoke SFDC lookup function
    payload = {"Details": {"ContactData": {"CustomerEndpoint": {"Address": customer_phone,"Type": "TELEPHONE_NUMBER"}}}}

    response = lambda_client.invoke(FunctionName=SFDC_INTEGRATION_FUNCTION, InvocationType='RequestResponse', Payload=json.dumps(payload))

    response_data = response['Payload'].read().decode()
    response_data = json.loads(response_data)

    user_data = response_data.get('Description', None)
    if user_data is not None:
        user_data = json.loads(user_data)
        return user_data
    else:
        return None
```

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# Salesforce integration

```python
from urllib.parse import urljoin
from simple_salesforce import format_soql, Salesforce

def get_salesforce_oauth_token():
    try:
        credentials = get_sfdc_credentials()
    except Exception as e:
        raise Exception("An error occurred looking up the SFDC credentials: {}".format(e))

    payload = {
        "grant_type": "password",
        "client_id": credentials["CONSUMER_KEY"],
        "client_secret": credentials["CONSUMER_SECRET"],
        "username": credentials["USER_NAME"],
        "password": "{}{}".format(credentials["USER_PASSWORD"], credentials["USER_SECURITY_TOKEN"]),
    }

    result = requests.post(
        url=urljoin(credentials["SALESFORCE_ENDPOINT"], "/services/oauth2/token"), data=payload)

    if result.status_code == requests.codes.ok:
        return result.json()
    else:
        raise Exception("error happened loading access token from salesforce: {}".format(result.content))

def sf_query_phone(phone_number: str):
    query = "SELECT Id, Name, Phone, AccountNumber, Description, LastModifiedDate, OwnerId FROM Account WHERE Phone = {phone} ORDER BY LastModifiedDate DESC"
    interpolated_query = format_soql(query, phone=phone_number)
    return sf().query(interpolated_query)
```

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